

Two shallow drillings were done in December 1983. The drill, ILTS-130F, was designed and manufactured by the Institute of Low Temperature Science. Although two types of barrel (Mk II and Mk III) were provided, only the former was used which could take an ice core 0.85 m long and 106 mm in diameter making a hole 133 mm in diameter. The rated output of the drill motor is 350 W but was used usually below 70% capacity, which was enough to attain a drilling speed over 0.01 m/s. The which was the one used successfully by JARE-21 and -23 in 1980 and 1982, which gave an hoisting speed up to 0.4 m/s. The drillings were done by a four-man team. It took about 60 hours in each drilling. Cores were examined on site.

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IDENTIFICATION OF TEPHRA LAYERS IN THE METEORITE ICE FIELD BASED ON TRACE ELEMENT COMPOSITIONS AND REFRACTIVE INDICES OF GLASS (Abstract)

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From the age of the ice in the meteorite ice field, it is possible not only to get information on ice dynamics but also to date the meteorite fall indirectly. Unfortunately, we have not succeeded so far in getting the age of the ice by a direct determination method like ¹⁴C.

There are many dirt bands in the ice at the Yamato and Allan Hills meteorite ice field. It was confirmed recently that a dirt band consists of volcanic ash (tephra) layers. As one tephra layer is considered to have been produced by single volcanic event, we can estimate the age of the ice from the age of the tephra layer. That is, a tephra layer will serve as a possible time marker of the ice. Therefore, it is possible to know the age of meteorite fall from that of tephra layer indirectly.

In this study, in order to test the role of tephra layers as a time marker of the ice, the abundances of more than 20 elements in glass separated from three dirt bands in the Yamato region and five in the Allan Hills region have been determined by instrumental neutron activation analysis (INAA). The refractive indices of glass samples have been also determined.

Three tephra layers of the Yamato region were classified into two, and six tephra layers of five sampling sites of the Allan Hills region were classified into four.

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